

But the most heedless passer-by cannot overlook *Achorutes socialis* Uzel when it makes up its mind to come out. The vast swarms literally blacken square yards of the snow around the principal foci from which they emerge. On level surfaces they may be as thick as 500 to the square foot, while in hollows and depressions in the snow—such as foot-prints—from which they cannot easily escape, they sometimes accumulate in solid masses that could be ladled out with a spoon. (I find the mark of a No. II shoe-pack an admirable snow-flea trap,—and to prevent unkind inferences I hasten to point out that in winter this footwear calls for at least four pairs of heavy socks.) Spreading out from these centres, the distribution becomes thinner, though for acres the insects often run from 10 to 50 to the square foot, and examination of a yard or so of the surface anywhere over miles of country is almost certain to show two or three specimens leaping and clambering among the snow particles.

Most writers speak of snow-fleas as occurring in the spring, and it is true that some species of them seem to come out only at that season, and in general they are most abundant towards the end of the winter. But it is the effect of the mild weather whenever it occurs and not the season that brings them out, for most of them can be found on the snow every month from November to April whenever the rising temperature approaches the freezing point. Those excellent field-naturalists, the Red Indians, noticed this. Among the native weather lore recorded by F. W. Waugh in his "Iroquois Foods," the snow-fleas are said to indicate mild weather, and the Onondagas, Mr. Waugh says, called them "soft weather fleas."

But it should be borne in mind that while the snow-flea tide rises in direct relation with the temperature, the soft weather is not the determining cause of the insects' emergence. The real factor is the amount of moisture in the atmosphere. In mild weather, the large quantity of water vapor released by the melting snow soon brings the humidity, both relative and absolute, to a high figure, and the snow-fleas, finding a more

(To be continued.)

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#### NEW APHIDS FROM OAKS.

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#### *Vacuna californica*, sp. nov.

*Vacuna dryophila* Schrank?. Davidson, Journal Econ. Ent., Vol. X, Apr., 1917.

In April, 1917, issue of the Journal of Economic Entomology, the writer referred this species doubtfully to *dryophila* Schrank of Europe, only a single winged individual having been taken up to the time the article (Little-known Western Plant-Lice II) was submitted for publication. Since that time more winged insects have been collected, and all prove to differ from the typical *dryophila* in the same manner as the first. It appears, therefore, that the Californian insect is worthy of specific rank.

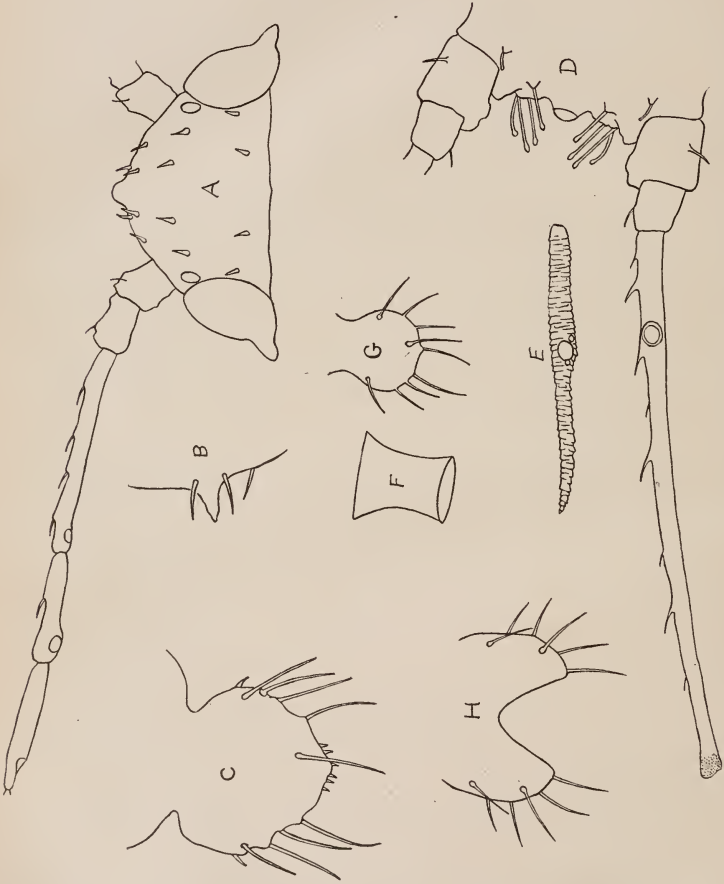


Fig. 32.—A-C, *Vacuwa californica*, sp. nov.; A, head and left antenna; B, lateral tubercle of abdomen; C, cauda from above. D-H, *Myzocallis quercifolia*, sp. nov.; D, head and left antenna (joints I to III); E, joint VI of antenna; F, cornicle; G, cauda from above; H, anal plate from above.

The two species differ as follows:—

<i>V. dryophila</i>	<i>V. californica</i>
4 or 5 sensoria on antennal III.	Only the apical sensorium on antennal III.
About 9 long hairs on antennal III.	3 or 4 long hairs on antennal III.
Mesothorax appearing as single chitin plate.	Mesothorax appearing as partially divided into lobes.

Dates of collection of winged forms are as follows: May 16, 1915; April 29, 1916; May 8, 1916; *Quercus lobata* Nee, Walnut Creek, Cal., May 14, 1917; *Quercus macrocarpa* Michx., Sacramento, Cal.

***Myzocallis quercifolii*, sp. nov.**

*Alate viviparous female.*

General colour light green; antennæ pale green with narrow brown annulations at apices of joints, filament of joint VI brownish; head and thoracic lobes olive green; wings hyaline, stigma very pale with dusky brown spots at base and apex; legs pale green, base of tibiæ with a brown ring, femora brownish near apex, tarsi and tibial apices brown; tubercles of thorax and abdomen paler than body colour; cornicles pale green; cauda and anal plate pale green; beak pale, extreme tip brown; venter light green.

Antennæ on short frontal tubercles, slender, longer than body, base and filament of joint VI subequal; joint III with one or two circular sensoria near the base; antennal spines rather stout; the forehead bears 8 stout prominent pale capitate spines, in length equal to half the width of the forehead. Prothorax and mesothorax each with a pair of tubercles on the dorsum. Abdomen narrow, with three pairs of conical tubercles on the dorsum and with three pairs of blunt tubercles on sides. Cornicles slightly longer than wide at base, somewhat constricted in centre. Cauda globular, spinose. Anal plate deeply cleft, spinose. Beak reaches to the second coxæ. Wings longer than body.

Measurements.—Length of body (mounted specimens) about 1.25 mm. Width of body about .45 mm. Antennæ, joint lengths: III .61 mm., IV .35 mm., V .32 mm., VI .28 mm. (.145 mm. plus .135 mm.). Length of wing 1.94 mm., of cornicles .085 mm., of cauda .08 mm., of beak .23 mm., of hind tibia 1.06 mm.

Described from 3 individuals collected on the leaves of Blue Oak (*Quercus douglasii* H. & A.) by Mr. F. B. Herbert, Los Gatos, Cal., June 4, 1917.

This species is closely related to *Myzocallis quercus* Kaltenbach, *M. pasania* Davidson, *M. californicus* Baker, and *M. californicus* Baker var. *pallidus*, below described. The prominent capitate spines on the forehead will distinguish it from others.

The following key will separate the above species:

1. Cornicles partly black.....*Myzocallis quercus* Kalt.  
Cornicles pale throughout.....2.
2. Forehead of winged vivipara with prominent capitate spines.....*Myzocallis quercifolii*, sp. nov.  
Forehead of winged vivipara with spines non-capitate or indistinctly capitate.....3.

3. Distal antennal joint about .58 mm. in length.....*Myzocallis pasaniæ* Davidson.  
 Distal antennal joint about .34 mm. in length.....4.
4. Distal sensorium of antennal III at or beyond middle of joint.....*Myzocallis californicus* Baker.  
 Distal sensorium of antennal III hardly one-third of the length of the joint from base.....*Myzocallis californicus* Baker var *pallidus* var nov.

***Myzocallis californicus* Baker var. *pallidus* var. nov.**

This form differs from var *californicus* in the sensoriation of the third antennal joint, *pallidus* having 3 or 4 sensoria all in the basal third of the joint, whereas *californicus* has from 4 to 6 sensoria more widely distributed and occupying the basal half or more of the joint. The structure of the body including the dorsal tubercles is very similar.

Var *pallidus* is pale green in colour, smaller in body than *californicus*; it was collected January 5, 1918, on *Quercus dumosa* Nutt., an evergreen scrub oak, near Jacumba, Cal.

A NEW SPECIES OF THE GENUS TACHYDROMIA FROM ILLINOIS  
 (DIPTERA, EMPIDIDÆ).

BY J. R. MALLOCH, URBANA, ILL.

The type series of the species described herein is deposited in the collection of the Illinois State Natural History Survey.

***Tachydromia harti*, sp. n.**

Male and female.—Glossy dark brown. Head black; antennæ yellowish testaceous; palpi brown. Thorax brown, paler anteriorly; propleura with white pruinescence. Abdomen yellowish at base of venter. Legs yellowish testaceous, darker in female, hind femora and tibiæ except bases, mid tibiæ at bases, and apices of basal three and all of apical two joints of all tarsi in both sexes blackened; fore tibia in male with two deep black spots on the inner or anterior side, one, heart-shaped, beyond middle and the other, round, at apex. Wing with two broad, black fasciæ as in *schwarzi* Coquillett, but the apical fasciæ extending nearer to apex of wing. Knobs of halteres white.

Eyes distinctly separated in both sexes; third antennal joint not large than second; arista terminal. Dorsum of thorax nude; scutellum with two bristles. Ventral sclerite of abdomen in male in front of hypopygium with a number of curved bristles, apex of hypopygium with a few similar bristles. Fore femur much swollen; fore tibia of male very much dilated from base to apex. Venation as in *schwarzi*.

Length 1.5–2 mm.

Type—male, Havana, Ill., June 5, 1918, (J. R. Malloch). Allotype and paratypes topotypical. One male and three females.

This species is most closely allied to *schwarzi* Coquillett, but may be separated from it by the broadened fore tibia of the male and the very much closer approximation of the subapical fasciæ to the apex of the wing.

Named in honour of my late colleague, C. A. Hart, who did some of his best work in the locality where the species was taken.